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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Mario Konegger

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EXAMINER

RAMPURIA, SHARAD K

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,942	Applicant(s) KONEGGER ET AL.	
	Examiner SHARAD RAMPURIA	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13-19, 21-29 are rejected under 35 U.S.C. 102 (e) as being anticipated by **Dick, Stephen G. et al.** [US 20030147362 A1].

As per claim 13, **Dick** teaches:

A method for synchronizing a radio communication system divided up into radio cells,
(Abstract, ¶ 0006) comprising:

transmitting data by a timeslot multiple access method with each radio cell having a base station for providing radio coverage to a plurality of mobile stations assigned to the radio cell;
(e.g. transmitting data; ¶ 0041)

receiving at each base station signals from mobile stations assigned to the radio cell of the base station and signals from mobile stations assigned to adjacent radio cells; (e.g. receiving at each base station; ¶ 0042, 0026)

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determining the number of mobile stations at the base station, on the basis of the signals received from the mobile stations and comparing the number at the base station with a predefined threshold value; (e.g. determining the number of mobile stations; ¶ 0041-0043, 0026, 0030)

if the number of mobile stations is below the threshold value, then using a first synchronization method for synchronizing the base station and the mobile stations assigned to the base station, the first synchronization method corresponding to an assigned transmission standard of the radio communication system; (e.g. the threshold value; ¶ 0041-0043, 0026, 0030)

if the number of mobile stations exceeds the threshold value, then using a second synchronization method in which the base station evaluates the signals received from the mobile stations to determine a time synchronization value and a frequency synchronization value to which the base station synchronizes itself; (e.g. the threshold value; ¶ 0041-0043, 0026, 0030)

if the number of mobile stations exceeds the threshold value, then receiving at the mobile station a signal from the base station of the radio cell to which the mobile station is assigned and signals from base stations of adjacent radio cells; (e.g. the threshold value; ¶ 0041-0043, 0026, 0030) and

if the number of mobile stations exceeds the threshold value, then evaluating the base station signals received at the mobile station to determine a time synchronization value and a frequency synchronization value to which the mobile station synchronizes itself. (e.g. the threshold value; ¶ 0041-0043, 0030)

As per claim 14, **Dick** teaches:

The method as claimed in claim 13, wherein base stations of adjacent radio cells use radio transmission resources from a stock that is collectively assigned to the base stations for data transmission purposes. (e.g.; ¶ 0018, 0034)

As per claim 15, **Dick** teaches:

The method as claimed in claim 13, wherein with the second synchronization method each base station uses timeslots from carrier frequencies collectively assigned to the base station and base stations of adjacent radio cells, the timeslots being used as radio transmission resources. (e.g.; ¶ 0038)

As per claim 16, **Dick** teaches:

The method as claimed in claim 13, wherein with the second synchronization method base stations of at least two adjacent radio cells simultaneously and jointly employ a common timeslot of a common carrier frequency for providing radio coverage to respectively assigned mobile stations, and the common timeslot is selected from collectively assigned radio transmission resources taking account of an interference situation in the common timeslot. (e.g.; ¶ 0041-0043, 0026, 0030)

As per claim 17, **Dick** teaches:

The method as claimed in one of the preceding claims, wherein with the second synchronization method both the base station and the mobile stations adjust carrier frequencies and timeslot transmitting instants on a subscriber-specific basis. (e.g.; ¶ 0041-0043, 0026, 0030)

As per claim 18, **Dick** teaches:

The method as claimed in one of the preceding claims, wherein co-channel interference is minimized at the base station and/or the mobile stations using an interference suppression method. (e.g.; ¶ 0054)

As per claim 19, **Dick** teaches:

The method as claimed in claim 13, wherein radio transmission resources are assigned at each base station in such a way that co-channel interference on adjacent radio cells is minimized. (e.g.; ¶ 0054)

As per claim 21, **Dick** teaches:

The method as claimed in claim 13, wherein the radio communication system uses a TDD or FDD radio transmission method. (e.g. TDD; ¶ 0014)

As per claim 22, **Dick** teaches:

The method as claimed in claim 13, wherein with the second synchronization method a time deviation is determined by correlation and a frequency deviation is determined by ascertaining a phase rotation of consecutive symbols following a transformation into the frequency range. (e.g.; ¶ 0032)

As per claim 23, **Dick** teaches:

The method as claimed in claim 13, wherein the second synchronization method is performed without additional signaling using a higher protocol layer between the base station and mobile stations assigned to the radio cell of the base station. (e.g.; ¶ 0022)

Claims 24-29 are the **method** claims, corresponding to **method** claims 14-19 respectively, and rejected under the same rationale set forth in connection with the rejection of claims 14-19 respectively, above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 20, 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dick** in view of **McGibney; Grant** [US 5889759 A].

As per claim 20, **Dick** teaches all the particulars of the claim except wherein the radio communication system uses an OFDM radio transmission method. However, **McGibney** teaches in an analogous art, that the method as claimed in claim 13, wherein the radio communication system uses an OFDM radio transmission method. (e.g. OFDM; Col.2; 53-62) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to including wherein the radio communication system uses an OFDM radio transmission method in order to provide a method of a timing and frequency synchronization method for orthogonal frequency division multiplexing (OFDM) signals in a wireless communication system.

Claim 30 is the **method** claim, corresponding to **method** claim 20 respectively, and rejected under the same rational set forth in connection with the rejection of claim 20 respectively, above.

As per claim 31, **Dick** teaches:

The method as claimed in claim 30, wherein the radio communication system uses a TDD or FDD radio transmission method. (e.g.; ¶ 0014)

As per claim 32, **Dick** teaches:

The method as claimed in claim 31, wherein with the second synchronization method a time deviation is determined by correlation and a frequency deviation is determined by ascertaining a phase rotation of consecutive symbols following a transformation into the frequency range. (e.g.; ¶ 0032)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is (571) 272-7870. The examiner can normally be reached on M-F. (8:30-5 EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sharad Rampuria/
Primary Examiner
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